ago the village of Barrow, near the southern extremity of the peninsula of Furness, in Lancashire, had a population of barely 200; now the municipal borough extends over an area of about 15,000 acres, with a population of about 35,000. Even fourteen years ago, when the first volume of *Chambers' Encyclopædia* was published, it seems to have been so little known, or of so little importance, as not to find a place in that useful work. It is now a well-laid-out town, with fine docks, and some of the most important iron and engineering works in the kingdom; while one of the steel works are considered to occupy a leading position in connection with the manufacture of Bessemer steel. This unequalled growth of the town of Barrow is entirely owing to the rapid development of the various industries connected with iron, the mineral deposits of the district being unusually rich.

Such a town forms an appropriate meeting-place for an Institute which has done so much to develop the manufacture of iron and steel, by affording a medium for the interchange of ideas between those who are engaged in the practical work of these industries or in the investigation of the scientific principles on which they must be founded if they are to be successful. The Institute is to be congratulated on the scientific tone which has all along pervaded its proceedings and its publications since it was founded in 1869. Though it has had such a comparatively short existence, it seems to have been in all respects prosperous (it now numbers close on 600 members), and to have most satisfactorily fulfilled the purpose for which it was instituted, the improvement of the all-important manufacture of iron and steel by the free interchange of ideas generated by experience or scientific study. To quote the words of our contemporary *Iron*: "Anterior to the establishment of this important society, the manufacturers of iron in its various forms had scant opportunity of communicating in public the results of their own experience, and of comparing those results with the observations of other persons equally interested in their development. Various methods of working prevailed in different parts of the country, and not long ago many processes connected with iron and steel manufacture were regarded as trade secrets to be carefully treasured up and jealously guarded. To the abolition of these narrow and antiquated notions the Iron and Steel Institute addressed itself vigorously from its very inception. It soon became apparent that among the first promoters of the society there prevailed an earnest desire to cast aside all petty jealousy, and to add unreservedly their individual knowledge to the general stock of information. Adherence to this excellent principle produced a prompt effect on the minds of iron and steel makers in all parts of the British Empire, and secured the sympathy of continental and American manufacturers." This is a very valuable result to have been accomplished in so short a time, and may perhaps partly be accounted for by the high scientific character of those who have from the first been elected to hold office in the society. With such names on its list of office-bearers as his Grace the Duke of Devonshire, Mr. Isaac Lowthian Bell, F.R.S., Mr. Bessemer, Mr. John Jones, F.G.S. (general secretary), Mr. David Forbes, F.R.S. (foreign secretary), Dr. C. W. Siemens, F.R.S., and others, the Institute has every chance of doing good work and of imbuing its members with a feeling of the necessity, in order to secure the highest success in their important industry, of importing into it continually the results of the latest and highest scientific research. There is little fear of the practical side of the iron and steel manufacture being neglected; and if this as well as other similar Institutes, do their work faithfully, and if the members enter upon their work equipped with a thorough scientific as well as professional training, there will be little fear of other nations outstripping us in this, as they threaten to do in other industries. To keep up the tone of the Institute, the importance of electing right men to hold office in it cannot be too much insisted on, and we hope that in this respect it will go on as it has begun.

The Barrow meeting seems to have been a real success; the only complaint being, as is almost always the case at such meetings, the difficulty of getting sleeping accommodation for the members; in Barrow this is not to be wondered at, as the people have scarcely had time yet to think about building hotels. The Duke of Devonshire, who is intimately connected with Barrow, the Earl of Lonsdale, the Mayor, and other dignitaries, as well as the railway companies and proprietors of the numerous works in and around Barrow, entertained the members most hospitably, and gave them every opportunity of inspecting the working of the numerous vast establishments connected with the industries with which the Institute is concerned. Indeed, the greater part of the four days seems to have been spent in visits and excursions; and considering the nature and aims of the Institute, its time could not, perhaps, have been more profitably spent. A good many papers were also read, all of them of considerable practical value, but of too purely technical a nature for these columns. Among the more generally scientific we may mention Mr. Wurzburger's very interesting and well-informed paper on the Geology of the West Coast Iron Ore Districts, and Mr. Charles Smith's paper on the Iron Ores of Sweden. The last day, September 4, was entirely devoted to an inspection of various mining works in the West Cumberland district.

Altogether we have no doubt that the members of the Institute will look back upon the Barrow meeting as one of the pleasantest and most instructive they have had. The Right Hon. Earl Granville has been elected president for the years 1874-6.

SHARPE'S "BIRDS IN THE BRITISH MUSEUM"

Catalogue of the Birds in the British Museum. Vol. I.—Accipitres. By R. Bowdler Sharpe. (Printed by order of the Trustees.)

THE great value of Dr. Günther's "Catalogue of Fishes" in the British Museum is appreciated by all working zoologists; and when Mr. Sharpe was appointed one of the Senior Assistants in the Natural History Department of that noble institution, ornithologists had every reason to hope for an equally important work on the birds in the same collection, all fully realising Mr. Sharpe's perfect competency for the execution of so

arduous a task. The volume before us shows that their hopes were not misplaced. The "Hand-List of Birds," by the late Mr. G. R. Gray, invaluable as it is on account of its extensive indexes and easy method of reference, has a very definite and narrow limit of utility; it is an essential supplement to a library, but gives no detailed information itself. The work before us has a very different scope. Besides the nomenclature and the synonomy of the whole bird-class, it will contain the complete description of each species from the hand of one of our most able and enthusiastic ornithologists, based upon the finest collection in the world, the deficiencies of which, through the liberality of the trustees and the energy of its superintendent, are being so rapidly diminished, that, as we are told in the introduction, of the 354 certain species of diurnal birds of prey at present known, less than thirty are desiderata in the collection. Woodcuts, scattered through the volume, help to illustrate many of the peculiarities of the heads, tarsi, and toes of the species to which they refer; whilst twenty or so coloured plates, from the pencil of Mr. Keulemanns, assist in indicating the special characters of type-specimens and rare forms.

A glance through the work tends strongly to confirm our prejudice against the existing rules of avian nomenclature, and makes us hope that before long some improvement in the direction of simplification will be adopted. The system of Linnæus was a binominal one, no doubt; but though that at present in vogue still retains that name, it has gradually drifted into a quadrinominal system. The number of species of birds is certainly large, but hardly beyond the grasp of a binominal nomenclature. As it is, each bird receives its two Latin names, generic and specific, added to which is that of the author who originally described it as such, in brackets or not, according to whether he placed it in some other genus or in the one in which it is retained. Could not some universal congress be formed to determine once for all a name for each species, based on the laws of priority, present knowledge, and euphony, and so fix the appellation of all now known birds, as a starting-point for future workers, so that it need no longer be felt that the publication of every new book which has any pretension to sound work will bring with it changes in the naming of even our most familiar species, which are as confusing as they are unimportant? In the work before us the well-known smallest of the diurnal birds of prey is shown to have to be placed in a new genus, *Microhierax*, instead of retaining its habitual name *Hierax*, whilst the King Condor must in future be *Cathartes* instead of *Gyparchus*, the Black Buzzard changing to *Catharistes* or *Catharista*, according to the appreciation of gender in the author transcribing it.

The Turkey Buzzard fares still worse. Its generic distinctness from the last-mentioned bird must have struck Mr. Ridgeway in the United States and Mr. Sharpe in this country almost simultaneously. Both authors must have had the works in which they announce their proposed change in proof at the same time. The "History of North American Birds," however, appeared shortly before the volume under present review, and consequently the still-born *Œnops* has to sink into a synonym of *Rhinogryphus*. A similar fate has awaited *Urubitinga uricincta*, which will have to stand as *Antenor* instead of *Erythrocnema*. Among other fresh genera we find *Lophotriorchis*, which includes *Spizaëtus kieneri* and *S. isidorii*; and *Urotriorchis*, containing only *Astur macrurus*; and others. With regard to species, Mr. Sharpe has separated off the smaller brown Condor as *S. aequatorialis*; the Turkey Buzzard, with yellow head and white irides, as *R. pernigra*; an *Astur*, obtained by Mr. Wallace in Lombock and Bouru, as *A. wallacii*; and a Falcon, which Prince Bonaparte and Prof. Schlegel consider a melanism of *F. severus*, as *F. religiosus*.

Next with regard to the classification which is adopted; as the work does not profess to be more than a catalogue and a key for the identification of the species, it would not be fair to expect that in the separation of the different families and genera described all the known peculiarities should be given; sufficient for the ready identification of each being all that is required. Consequently when the sub-family *Polyborinæ* of the family *Falconidæ* is divided up as in the following table, without any further definition, it is evident that the author only attempts to give a minimum, and not a maximum number of distinguishing features.

POLYBORINÆ.

Key to the Genera.

a. Middle tail-feathers not elongated.
  a'. Nostrils oval . . . . POLYBORUS.
  b'. Nostrils round . . . IBICTER.
b. Middle tail-feathers extremely elongated; head with elongated plumes.
  a'. Nostrils vertical ovals; forehead with erect crest . . . . . CARIAMA.
  b'. Nostrils perpendicular ovals; forehead not crested . . . . . SERPENTARIUS.

In the above instance we are astonished, as many others will no doubt be, not so much at the slightness of the differentiation of the genera, as at the fact that *Cariama* and *Serpentarius* are placed in such intimate relation with the Caracaras. The illustrious Nitzsch, whose opinions on classification are more to be relied on than those of any other zoologist, it is true, placed the Secretary Bird with the Accipitres, though he retained the Cariama with the Bustards. More recently there has been a tendency, which is daily becoming stronger, to combine the one with the other. The question then arises, are they Bustards or are they birds of prey? Internal structure is overpoweringly in favour of the former position; and such being the case, it is almost to be regretted that no further notice has been taken by Mr. Sharpe of their peculiarities than the statement that in two out of the four genera of the Polyborinæ, the median tail feathers are elongate, whilst in the other two they are short, especially when *Pandion* is placed in a sub-order by itself; and, as it happens, has its foot accidentally represented without the ungual phalanges or any of the three anterior toes. For though *Serpentarius* presents strongly marked external facial resemblances to *Polyborus*, which, by the way, are not to be found in *Cariama*, nevertheless in other respects they both differ so much from all other true Accipitres, that it would be impossible, even if they were birds of prey, to do otherwise than place them in a sub-order by themselves; which is the same thing as saying

that their relationship to the Caracaras is not more intimate than to the eagles and the hawks.

Similarly, the American Vultures, or *Cathartidæ*, if they are vultures at all, which is extremely improbable, can hardly be included in the same family with their typically accipitrine namesakes, but must be placed independently by themselves. The conformation of the feet alone, and more especially the difference in the proportionate length of the phalanges pointed out by Prof. Huxley, is alone sufficient to decide this point.

Leaving these minor points out of the question, however, as having little or no bearing on the true value of the whole, we look on the volume before us as the precursor of others, which if all completed in the same thorough and able manner that is throughout manifested in the first, will form a standard ornithological work, the importance of which it will be impossible to overestimate. We wish Mr. Sharpe all success in the further prosecution of his almost herculean task.

OUR BOOK SHELF

1. *The Principal Timber Trees.* 2. *Select Plants (exclusive of timber trees).* 3. *Additions to the Lists of the principal Timber Trees and other Select Plants readily eligible for Victorian Industrial Culture.* By Baron Ferd. von Mueller. (Melbourne.)

THESE papers, drawn up by Baron Mueller, and first published in the Proceedings of the Zoological and Acclimatisation Society of Victoria, are something more than mere lists, inasmuch as in their separate pamphlet form, in which form they have all since been issued, the first occupies 58 pp. 8vo, and was issued in 1871; the second, 428 pp. 8vo, issued in 1872; and the third, the "Additions," 40 pp. 8vo, issued only a month or two since, and only just come to hand.

It is not on account of any original observation being made into the properties or uses of the trees or plants enumerated that we think these papers worthy of notice, but rather on account of their practical use in imparting to an unscientific colonist a knowledge, not only of such trees and other plants as may grow in the climate, but also of their value in an economic or commercial point of view. By means of a pamphlet like either of the above, we have ready references to plants, natives of nearly every part of the globe, which are, moreover, with some authority considered suitable for acclimatisation in Australia and other countries. Such information as the geographical distribution, habit of the plant, &c., could only be obtained by reference to the numerous Floras and bulky botanical works which are as sealed books to the colonists generally, while the economic applications would have to be sought for in numerous other and totally distinct works, for our Colonial Floras seldom or never even touch on this important part of the subject. Baron Mueller, indeed, says that these lists are intended not so much to contain records of original research as "to bring together information more condensed and more recent than would be attainable in costly or voluminous works of even several languages."

The arrangement of the genera is alphabetical instead of being scientific, and the following examples will show the sort of information given :—

"*Buxus sempervirens* L.—The Turkey Box Tree. South Europe, North Africa, South-west Asia. This slow-growing tree should be timely planted to provide the indispensable box-wood for wood-engravers and musical instrument makers, as yet no good substitute for it having been discovered. The box tree needs calcareous soil for its best development. Among allied species, *B. balearica* attains a height of eighty feet."

Then follows a list of other species of *Buxus*, about which, however, little is known as to the value of the respective woods. Here is another example, taken haphazard :—

"*Guevina avellana* Molina.—Extends from Middle Chili to the Chonos Archipelago. Briefly alluded to already in the list of trees desirable for Victorian forest culture. One of the most beautiful trees in existence. The snowy white flower-spikes produced simultaneously with the ripening of the coral-red fruit. In the cooler southern regions the tree attains considerable dimensions. The wood, tough and elastic, used for boat-building. The fruit of the allied *Brabejum stellatifolium* can only be utilised with caution in a roasted state as an article of diet, because it is noxious, or even absolutely poisonous, in a raw state."

Guevina avellana is a Proteaceous tree, the fruits of which are very similar in appearance, and the seeds very similar in flavour, to those of the Australian tree *Macadamia ternifolia*. These lists will probably prove useful not only as a guide to the selection of plants for the purposes of acclimatisation, but also as a handy reference for economic species generally. J. R. J.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

A Remarkable Thunderstorm

[The following letter has been forwarded to us for publication by Mr. R. H. Scott, F.R.S.—ED.]

"Yorkshire Philosophical Society,
York, Sept. 2, 1874.

"Dear Sir,—I have to report to-day one of the most unusual thunderstorms that I ever remember. It began to be dark about 12.30 noon, and rain fell; at 12.40 it was much darker; at 12.43 rain fell in torrents, but was so much driven by the wind that you saw it being driven like snow in packs; so dense was it now and for ten minutes that I could not see chimney-pots 100 yards distant. The thermometer must have fallen tremendously, for windows were so steamed inside as to be opaque. I remarked that the clouds went in the direction of N.W., while the wind was S.S.W., and force about 8. Part of the time it went in whirlpools, as it were; during the climax of ten minutes we had rain with lightning and thunder, then snow, and snow and sleet, and distinct hail afterwards, but not of large size.

"I should have taken the state of the instruments, but I was about half a mile from the museum.—I am, &c.,

(Signed) "C. WAKEFIELD

"R. H. Scott, Esq., F.R.S.,
"Director, Meteorological Office.

"P.S.—Rain measures '49. There was lightning (a little forked, the rest sheet) and thunder during all the storm."

The Exhibition of Specimens and Apparatus at the British Association

IF no one else has already done so, will you permit me to call attention to the valuable feature of the Belfast meeting of the British Association presented by the exhibition of specimens, apparatus, and diagrams in the Anatomical Museum, due, it is understood, to the energy and perseverance of Mr. Ray Lankester. Here were to be seen, for instance, Mr. Symons's series of thermometers illustrating variations in sensibility, a collection of bones and other remains found in Kent's Hole and the Victoria Cave, during 1873-74, Dr. Pye Smith's large undescribed Medusa, the diagrams and plants which illustrated Dr. Hooker's address on Carnivorous Plants, specimens of breech-loading fire-arms, and many other objects of interest, all catalogued in each day's issue of the "Journal." It is to be hoped that a similar collection, rendered still more complete through the co-operation of the authors of papers, will be an addition to the attractions of all future meetings of the Association.

Penmaenmawr, Sept. 4 ALFRED W. BENNETT